

## Complete Summary

---

### **GUIDELINE TITLE**

Clinical policy: critical issues in the management of adult patients presenting to the emergency department with community-acquired pneumonia.

### **BIBLIOGRAPHIC SOURCE(S)**

Nazarian DJ, Eddy OL, Lukens TW, Weingart SD, Decker WW, American College of Emergency Physicians. Clinical policy: critical issues in the management of adult patients presenting to the emergency department with community-acquired pneumonia. Ann Emerg Med 2009 Nov;54(5):704-31. [57 references] [PubMed](#)

### **GUIDELINE STATUS**

This is the current release of the guideline.

This guideline updates a previous version: American College of Emergency Physicians (ACEP). Clinical policy for the management and risk stratification of community-acquired pneumonia in adults in the emergency department. Ann Emerg Med 2001 Jul;38(1):107-13. [38 references]

## COMPLETE SUMMARY CONTENT

SCOPE  
 METHODOLOGY - including Rating Scheme and Cost Analysis  
 RECOMMENDATIONS  
 EVIDENCE SUPPORTING THE RECOMMENDATIONS  
 BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS  
 QUALIFYING STATEMENTS  
 IMPLEMENTATION OF THE GUIDELINE  
 INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT  
 CATEGORIES  
 IDENTIFYING INFORMATION AND AVAILABILITY  
 DISCLAIMER

## SCOPE

### **DISEASE/CONDITION(S)**

Community-acquired pneumonia (CAP)

### **GUIDELINE CATEGORY**

Diagnosis  
 Evaluation

Management  
Treatment

## **CLINICAL SPECIALTY**

Emergency Medicine  
Infectious Diseases  
Internal Medicine  
Pulmonary Medicine

## **INTENDED USERS**

Physicians

## **GUIDELINE OBJECTIVE(S)**

- To update the 2001 American College of Emergency Physicians clinical policy for the management and risk stratification of adult patients presenting to the emergency department with community-acquired pneumonia (CAP)
- To derive evidence-based recommendations to help clinicians answer the following 2 questions:
  - Are routine blood cultures indicated in patients admitted with CAP?
  - In adult patients with CAP without severe sepsis, is there a benefit in mortality or morbidity from the administration of antibiotics within a specific time course?

## **TARGET POPULATION**

Patients 18 years of age or older with signs and symptoms of community-acquired pneumonia (CAP) and radiographic evidence of pneumonia

**Note:** These guideline is not intended forÂ patients who are pregnant, or immunocompromised (including patients with human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), organ transplant, or recipients of corticosteroids, antineoplastic therapy, or other immunosuppressive agents), or have been hospitalized within the last 30 days.

## **INTERVENTIONS AND PRACTICES CONSIDERED**

### **Diagnosis/Evaluation**

Obtaining blood cultures in higher-risk patients (e.g., patients with severe pneumonia, those immunocompromised, or with other significant comorbidities)

**Note:** Routine blood cultures are not recommended.

### **Treatment**

Administration of antibiotic therapy as soon as feasible once the diagnosis of community-acquired pneumonia (CAP) is established

## **MAJOR OUTCOMES CONSIDERED**

- Morbidity
- 30-day and in-hospital mortality
- Length of hospital stay
- Time to clinical stability
- Rates of true-positive and false-positive blood cultures

## METHODOLOGY

### METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)  
 Hand-searches of Published Literature (Secondary Sources)  
 Searches of Electronic Databases

### DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Multiple searches of MEDLINE, MEDLINE In-Process, and the Cochrane database were performed. Specific key words/phrases used in the searches are identified under each critical question. All searches were limited to English-language sources, human studies, and adults. Additional articles were reviewed from the bibliography of articles cited and from published textbooks and review articles. Subcommittee members supplied articles from their own files, and more recent articles identified during the process were also included.

See the original guideline document for words/phrases for literature searches associated with each clinical question reproduced in the "Guideline Objectives" field.

### NUMBER OF SOURCE DOCUMENTS

Not stated

### METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus  
 Weighting According to a Rating Scheme (Scheme Given)

### RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

#### Strength of Evidence

#### Literature Classification Schema<sup>^</sup>

Design/ Class	Therapy*	Diagnosis**	Prognosis***
1	Randomized, controlled trial or meta-analyses of randomized trials	Prospective cohort using a criterion standard	Population prospective cohort

<b>Design/ Class</b>	<b>Therapy*</b>	<b>Diagnosis**</b>	<b>Prognosis***</b>
2	Nonrandomized trial	Retrospective observational	Retrospective cohort Case control
3	Case series Case report Other (e.g., consensus, review)	Case series Case report Other (e.g., consensus, review)	Case series Case report Other (e.g., consensus, review)

^Some designs (e.g., surveys) will not fit this schema and should be assessed individually.

\*Objective is to measure therapeutic efficacy comparing =2 interventions.

\*\*Objective is to determine the sensitivity and specificity of diagnostic tests.

\*\*\*Objective is to predict outcome including mortality and morbidity.

### **Approach to Downgrading Strength of Evidence\***

	<b>Design/Class</b>		
<b>Downgrading</b>	<b>1</b>	<b>2</b>	<b>3</b>
None	I	II	III
1 level	II	III	X
2 levels	III	X	X
Fatally flawed	X	X	X

\*See "Description of Methods Used to Analyze the Evidence" field for more information.

## **METHODS USED TO ANALYZE THE EVIDENCE**

Systematic Review with Evidence Tables

### **DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE**

This clinical policy was created after careful review and critical analysis of the medical literature.

All articles used in the formulation of this clinical policy were graded by at least 2 subcommittee members for strength of evidence and classified by the subcommittee members into 3 classes of evidence on the basis of the design of the study, with design 1 representing the strongest evidence and design 3 representing the weakest evidence for therapeutic, diagnostic, and prognostic clinical reports, respectively (see the "Rating Scheme for the Strength of Evidence" field). Articles were then graded on 6 dimensions thought to be most relevant to the development of a clinical guideline: blinded versus nonblinded outcome assessment, blinded or randomized allocation, direct or indirect outcome measures (reliability and validity), biases (e.g., selection, detection, transfer), external validity (i.e., generalizability), and sufficient sample size. Articles received a final grade (Class I, II, III) on the basis of a predetermined formula,

taking into account design and quality of study (see the "Rating Scheme for the Strength of Evidence" field). Articles with fatal flaws were given an "X" grade and not used in formulating recommendations in this policy. Evidence grading was done with respect to the specific data being extracted and the specific critical question being reviewed. Thus, the level of evidence for any one study may vary according to the question, and it is possible for a single article to receive different levels of grading as different critical questions are answered. Question-specific level of evidence grading may be found in the Evidentiary Table included at the end of original guideline document.

## **METHODS USED TO FORMULATE THE RECOMMENDATIONS**

Expert Consensus

## **DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS**

This policy is a product of the American College of Emergency Physicians (ACEP) clinical policy development process, including expert review, and is based on the existing literature; when literature was not available, consensus of emergency physicians was used.

## **RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS**

Clinical findings and strength of recommendations regarding patient management were made according to the following criteria:

### **Strength of Recommendations**

**Level A recommendations.** Generally accepted principles for patient management that reflect a high degree of clinical certainty (i.e., based on "strength of evidence Class I" or overwhelming evidence from "strength of evidence Class II" studies that directly address all the issues).

**Level B recommendations.** Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (i.e., based on "strength of evidence Class II" studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of "strength of evidence Class III" studies).

**Level C recommendations.** Other strategies for patient management based on preliminary, inconclusive, or conflicting evidence, or, in the absence of any published literature, based on panel consensus.

There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. Factors such as heterogeneity of results, uncertainty about effect magnitude and consequences, strength of prior beliefs, and publication bias, among others, might lead to such a downgrading of recommendations.

## **COST ANALYSIS**

A formal cost analysis was not performed and published cost analyses were not reviewed.

## METHOD OF GUIDELINE VALIDATION

External Peer Review  
Internal Peer Review

## DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Expert review comments were received from individual emergency physicians and from individual members of the American College of Chest Physicians, the American College of Physicians, the Infectious Diseases Society of America, the Institute for Clinical Systems Improvement, the Society for Academic Emergency Medicine, and American College of Emergency Physicians' (ACEP's) Section on Critical Care Medicine. Their responses were used to further refine and enhance this policy.

The American College of Emergency Physicians Board of Directors approved this guideline on June 23, 2009.

Supported by the Emergency Nurses Association, July 21, 2009.

## RECOMMENDATIONS

### MAJOR RECOMMENDATIONS

Definitions for the strength of evidence (Class I-III) and strength of recommendations (Level A-C) are repeated at the end of the Major Recommendations.

1. **Are routine blood cultures indicated in patients admitted with community-acquired pneumonia (CAP)?**

#### **Patient Management Recommendations**

**Level A recommendations.** None specified.

**Level B recommendations.** Do not routinely obtain blood cultures in patients admitted with CAP.

**Level C recommendations.** Consider obtaining blood cultures in higher-risk patients admitted with CAP (e.g., severe disease, immunocompromise, significant comorbidities, or other risk factors for infection with resistant organisms).

2. **In adult patients with CAP without severe sepsis, is there a benefit in mortality or morbidity from the administration of antibiotics within a specific time course?**

## Patient Management Recommendations

**Level A recommendations.** None specified.

**Level B recommendations.** There is insufficient evidence to establish a benefit in mortality or morbidity from antibiotics administered in less than 4, 6, or 8 hours from emergency department (ED) arrival.

**Level C recommendations.** Administer antibiotics as soon as feasible once the diagnosis of CAP is established; there is insufficient evidence to establish a benefit in morbidity or mortality from antibiotics administered within any specific time course.

### Definitions:

### Strength of Evidence

### Literature Classification Schema<sup>^</sup>

Design/ Class	Therapy*	Diagnosis**	Prognosis***
1	Randomized, controlled trial or meta-analyses of randomized trials	Prospective cohort using a criterion standard	Population prospective cohort
2	Nonrandomized trial	Retrospective observational	Retrospective cohort Case control
3	Case series Case report Other (e.g., consensus, review)	Case series Case report Other (e.g., consensus, review)	Case series Case report Other (e.g., consensus, review)

<sup>^</sup>Some designs (e.g., surveys) will not fit this schema and should be assessed individually.

\*Objective is to measure therapeutic efficacy comparing ≥2 interventions.

\*\*Objective is to determine the sensitivity and specificity of diagnostic tests.

\*\*\*Objective is to predict outcome including mortality and morbidity.

### Approach to Downgrading Strength of Evidence\*

	Design/Class		
Downgrading	1	2	3
None	I	II	III
1 level	II	III	X
2 levels	III	X	X
Fatally flawed	X	X	X

\*See "Description of Methods Used to Analyze the Evidence" field for more information.

## **Grades of Recommendations**

**Level A recommendations.** Generally accepted principles for patient management that reflect a high degree of clinical certainty (i.e., based on "strength of evidence Class I" or overwhelming evidence from "strength of evidence Class II" studies that directly address all the issues).

**Level B recommendations.** Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (i.e., based on "strength of evidence Class II" studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of "strength of evidence Class III" studies).

**Level C recommendations.** Other strategies for patient management based on preliminary, inconclusive, or conflicting evidence, or, in the absence of any published literature, based on panel consensus.

There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. Factors such as heterogeneity of results, uncertainty about effect magnitude and consequences, strength of prior beliefs, and publication bias, among others, might lead to such a downgrading of recommendations.

## **CLINICAL ALGORITHM(S)**

None provided

## **EVIDENCE SUPPORTING THE RECOMMENDATIONS**

### **TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS**

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

## **BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS**

### **POTENTIAL BENEFITS**

- Appropriate use of blood cultures in patients presenting to the emergency department with community-acquired pneumonia
- Appropriate and timely administration of antibiotics to avoid mistreatment, medication overuse, and increased antibiotic resistance

### **POTENTIAL HARMS**

Blood culture results may be misleading and may cause unintended consequences. False-positive or contaminated specimens are common, and in some studies, rates of false-positive blood cultures approach those of true-



positive. Treatment based on preliminary false-positive blood culture results may lead to unnecessary antibiotic coverage and increased length of stay, pending final identification of the organism.

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

- This policy is not intended to be a complete manual on the evaluation and management of adult patients with community-acquired pneumonia (CAP) but rather a focused examination of critical issues that have particular relevance to the current practice of emergency medicine.
- It is the goal of the Clinical Policies Committee to provide an evidence-based recommendation when the medical literature provides enough quality information to answer a critical question. When the medical literature does not contain enough quality information to answer a critical question, the members of the Clinical Policies Committee believe that it is equally important to alert emergency physicians to this fact.
- Recommendations offered in this policy are not intended to represent the only diagnostic and management options that the emergency physician should consider. The American College of Emergency Physicians (ACEP) clearly recognizes the importance of the individual physician's judgment. Rather, this guideline defines for the physician those strategies for which medical literature exists to provide support for answers to the crucial questions addressed in this policy.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

Getting Better

### IOM DOMAIN

Effectiveness  
Timeliness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

Nazarian DJ, Eddy OL, Lukens TW, Weingart SD, Decker WW, American College of Emergency Physicians. Clinical policy: critical issues in the management of adult patients presenting to the emergency department with community-acquired pneumonia. Ann Emerg Med 2009 Nov;54(5):704-31. [57 references] [PubMed](#)

## **ADAPTATION**

Not applicable: The guideline was not adapted from another source.

## **DATE RELEASED**

2009 Nov

## **GUIDELINE DEVELOPER(S)**

American College of Emergency Physicians - Medical Specialty Society

## **SOURCE(S) OF FUNDING**

American College of Emergency Physicians

## **GUIDELINE COMMITTEE**

American College of Emergency Physicians (ACEP) Clinical Policies Subcommittee on Community-acquired Pneumonia

ACEP Clinical Policies Committee

## **COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE**

*Members of the Clinical Policies Subcommittee on Community-acquired Pneumonia (Writing Committee):* Deborah J. Nazarian, MD, *Chair*; Orin L. Eddy, MD; Thomas W. Lukens, MD, PhD; Scott D. Weingart, MD; Wyatt W. Decker, MD

*Members of the Clinical Policies Committee (Oversight Committee):* Wyatt W. Decker, MD (*Co-Chair* 2006-2007, *Chair* 2007-2009); Andy S. Jagoda, MD (*Chair* 2003-2006, *Co-Chair* 2006-2007); Deborah B. Diercks, MD; Barry M. Diner, MD (Methodologist); Jonathan A. Edlow, MD; Francis M. Fesmire, MD; John T. Finnell, II, MD, MSc (Liaison for Emergency Medical Informatics Section 2004-2006); Steven A. Godwin, MD; Sigrid A. Hahn, MD; John M. Howell, MD; J. Stephen Huff, MD; Eric J. Lavonas, MD; Thomas W. Lukens, MD, PhD; Donna L. Mason, RN, MS, CEN (ENA Representative 2004-2006); Edward Melnick, MD (EMRA Representative 2007-2008); Anthony M. Napoli, MD (EMRA Representative 2004-2006); Deborah Nazarian, MD; AnnMarie Papa, RN, MSN, CEN, FAEN (ENA Representative 2007-2009); Jim Richmann, RN, BS, MA(c), CEN (ENA Representative 2006-2007); Scott M. Silvers, MD; Edward P. Sloan, MD, MPH; Molly E. W. Thiessen, MD (EMRA Representative 2006-2008); Robert L. Wears, MD, MS (Methodologist); Stephen J. Wolf, MD; Cherri D. Hobgood, MD (Board Liaison 2004-2006); David C. Seaberg, MD, CPE (Board Liaison 2006-2009); Rhonda R. Whitson, RHIA, Staff Liaison, Clinical Policies Committee and Subcommittees

## **FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST**

Relevant industry relationships of subcommittee members: There were no relevant industry relationships disclosed by the subcommittee members.

Relevant industry relationships are those relationships with companies associated with products or services that significantly impact the specific aspect of disease addressed in the critical question.

## **ENDORSER(S)**

Emergency Nurses Association - Medical Specialty Society

## **GUIDELINE STATUS**

This is the current release of the guideline.

This guideline updates a previous version: American College of Emergency Physicians (ACEP). Clinical policy for the management and risk stratification of community-acquired pneumonia in adults in the emergency department. Ann Emerg Med. 2001 Jul;38(1):107-13. [38 references]

## **GUIDELINE AVAILABILITY**

Electronic copies: Available in Portable Document Format (PDF) from the [American College of Emergency Physicians Web site](#).

## **AVAILABILITY OF COMPANION DOCUMENTS**

None available

## **PATIENT RESOURCES**

None available

## **NGC STATUS**

This NGC summary was completed by ECRI on January 29, 2003. The information was verified by the guideline developer on March 13, 2003. This NGC summary was updated by ECRI Institute on January 19, 2010. The information was verified by the guideline developer on February 9, 2010.

## **COPYRIGHT STATEMENT**

This NGC summary is based on the original guideline, which is subject to the guideline developer's copyright restrictions. For more information, please refer to the [American College of Emergency Physicians \(ACEP\) Web site](#).

## DISCLAIMER

### NGC DISCLAIMER

The National Guideline Clearinghouse™ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at <http://www.guideline.gov/about/inclusion.aspx>.

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.

[Copyright/Permission Requests](#)

Date Modified: 3/1/2010

